

# **EPA's Programs that Address Emissions from Existing Diesel Engines**

***Response to the NAS Report on Air  
Quality Management in the U.S.***

# NAS's recommendation summary

## *Reduce Emissions from Existing Facilities and Vehicles*

“...a more comprehensive and systematic effort by EPA and the states to develop heavy-duty vehicle inspection and maintenance programs and to enforce in-use emissions, as well as sustained financing from the federal and state level for retrofits and early replacement of older vehicles, will be required if this important source of continuing exposure, especially for inner-city urban populations, is to be brought under control.” pp. 246-247

# **EPA's Programs that address emissions from existing HD vehicles**

- Regulatory Programs
  - EPA's In-use Compliance Testing
  - Manufacturer Conducted In-use Testing
- Heavy-Duty Inspection/Maintenance
- Voluntary Programs
  - Diesel Retrofit
  - SmartWay

# **EPA's Regulatory Programs**

## ***Addressing Emissions from the In-use Diesel Fleet***

# EPA's In-use Compliance Program

- EPA is assessing emissions from existing vehicles with a HD In-use testing program
- EPA's HD In-use testing:
  - Started in-use testing with portable devices in 2001
  - Testing 50-80 on-highway engines per year on the road under real-world driving conditions
  - Testing for compliance with the Not-To-Exceed (NTE) standard, checking for defeat devices, and to understand emissions impact under a variety of conditions: altitude, temperature, terrain, and driver
  - This program will identify systematic high emission problems that should be addressed by the manufacturers

# **Manufacturer-Conducted In-use Testing Program**

- Beginning next year engine manufacturers will start in-use testing programs modeled after the EPA program
- Testing conducted and paid for by manufacturers with EPA oversight
- The proposed rule was published in June 2004 and the final rule is expected in December 2004

# **Manufacturer-Conducted In-use Testing Program cont'd**

- Using portable devices
- Pilot program for 2005/06
- Enforceable program starting 2007
- EPA chooses engine families for testing, up to 25% per year
- Engine retest and/or void certificates if program requirements are not met
- EPA/ARB reserve right to conduct own testing

# Regulatory recommendations

- Continue compliance presence by testing vehicles which will help EPA evaluate how well the industry is complying
- Follow up on non-compliance issues with manufacturers



# Heavy-Duty I/M Programs

- EPA has provided guidance to many states that conduct their own HD I/M program with some form of smoke test

## **Recommendations:**

Short term: States have flexibility to conduct their own HD I/M program

Long term:

- Pursue HD OBD
  - EPA and CARB are working closely on a harmonized, nationwide set of requirements for HD OBD in the US for gas and diesel vehicles for implementation in 2010
- Further develop portable device testing capability (e.g., PM) and continue assessing remote sensing potential.
- EPA is committed to working with the States and other stakeholders to develop a policy that looks at the best means of evaluating in-use deterioration from HD engines
- Establish a stakeholder group to provide advice on the future of HD I/M programs

# **EPA's Voluntary Programs**

## ***Addressing Emissions from the In-use Diesel Fleet***

# What is the Voluntary Diesel Retrofit Program?

- A voluntary program designed to improve the emission performance of existing diesel vehicles and equipment
- We are building a market for clean diesel concepts
  - Accelerating the delivery of ULSD
  - Forging business partnerships and relationships
  - Investing EPA resources to accelerate market growth
- EPA has considered Retrofits as a mandatory program - authority constraints exist

# Expanding Retrofits

- Last June - EPA, DTF and MECA co-hosted a Diesel Retrofit Conference
  - The conference was well attended (>300 people)
  - The conference was a success in raising the concept of retrofit/replacement to the national agenda
- Feedback from conference indicated a strong interest in establishing different sector based strategies:
  - Clean School Bus USA (continue w/existing program)
  - Construction
  - Ports
  - Freight (trucks, rail, airports)

# Incentives for Retrofits

- In the US there are many different incentives to help promote retrofit activities
  - Federal & State funding assistance
  - Supplemental Environment Projects (SEP) as a result of enforcement actions
  - Contractual requirements
- In addition, other countries have also been successful in establishing incentives for retrofits
  - Switzerland: mandates
  - Sweden & Hong Kong: access to economic zones

# Retrofit Funding Opportunities

- Using OAR funding, we have been successful in leveraging additional resources

Source	Investment	# Retrofits
OAR	\$12.4 Million*	~ 2,795
Market	\$457 Million (est.)	~ 159,000

\* OAR funds used to leverage matching funds.

- States have developed various funding mechanisms
  - Washington - \$5M/yr for school bus retrofits over 5 yrs
  - New York - \$5M/yr for school bus retrofits
  - Texas Emission Reduction Plan - \$130M/yr for retrofits over the next 3 yrs
  - California – Carl Moyer Program: ~\$70M 1998-03 (~\$61M this year)
  - Georgia & Oregon have tax credits in place
- Approximately \$35M in SEPs for retrofit projects
  - Retrofit projects have been established in 15 states, with more on the way
- President's 2005 budget requests \$65 million for school bus retrofit/replacement

# Ongoing Retrofit Activities

- Working with FACA and stakeholders on:
  - Developing a technical document for states on retrofit cost and benefits
  - Establishing guidance that outlines how to generate air quality plan credits through retrofit programs
  - Communication/outreach efforts to fleet owners on HD maintenance
- Harmonized with CARB on retrofit technology verification
  - Both agencies are working together to evaluate the effectiveness of retrofit technologies for new verifications as well as in-use testing

# Retrofit Program Recommendations

- EPA agrees with the recommendation of a need to establish a mechanism for sustained funding to encourage additional retrofit activity across the country
- Focus on a national initiative that will build upon the successes of our voluntary programs( i.e. Clean School Bus USA, Clean Cities...) and provide federally funded incentives for diesel emissions reductions, using California's Carl-Moyer Program and Texas's Emissions Reduction Plan (TERP) as a model
- Work toward the goal of retrofitting/replacing the existing 11 million engines in the fleet today by concentrating on the construction, port, freight and school bus sectors, under the guidance of the new FACA group



# NOx Reflash Program

- EPA is exploring a voluntary program with engine manufacturers to reduce NOx on 1993 -1998 CD trucks
- The success of the program requires the participation of the engine manufacturers, dealers, and the owners of the vehicles to install low NOx software in the vehicle's computer
  - This software upgrade will reprogram (reflash) the vehicle's computer so the engine will emit less NOx emissions
- Recommendation: Meet with states and engine manufacturers to develop a program that educates owners on reflash and urges their participation

# EPA's SmartWay Program

- Voluntary partnership between EPA and the freight industry that will:
  - Increase energy efficiency and energy security
  - Reduce air pollution and greenhouse gases
- Emission Reduction Goal:
  - 150 million barrels of oil each year (12 million cars off the road)
  - 33 to 66 million metric tons CO<sub>2</sub> annually by 2012
  - 200,000 tons NO<sub>x</sub> annually, plus PM and air toxics benefits
- Three major SmartWay Transport Partnership components:
  - Corporate Partnerships
  - Rail/Intermodal Operations
  - National Transportation Idle-Free Corridors

# SmartWay Idle Reduction Funding Opportunities

- In FY2004 EPA's \$800,000 Grant Program to States and non-profits
- DOT Congestion Mitigation and Air Quality
- DOE Clean Cities Grant Program
- DOT State Infrastructure Bank

# SmartWay Program Recommendations

- Short term :
  - Provide EPA guidance to allow credits in SIPs, conformity and NSR offsets for truck and locomotive idle reduction projects
  - Work with DOT, & ATA's Truck Maintenance Council to develop national electrical standards for truck stop electrification
- Long term:
  - Continue building industry support through market based approach:
    - Convince companies that hire trucking companies (Wal-mart, Tysons, IBM, Dell, etc.) to use fleets participating in these programs.
  - Investigate state low interest loan programs and other creative financial methods to help private fleets acquire the capital to purchase fuel saving devices that over time pay for themselves (idling reduction, wide based tires, aerodynamics, etc.)

## For Further Information...

- Manufacturer-Conducted In-use Testing Program [www.epa.gov/otaq/hd-hwy.htm](http://www.epa.gov/otaq/hd-hwy.htm)
- Voluntary Diesel Retrofit Program [www.epa.gov/otaq/retrofit](http://www.epa.gov/otaq/retrofit)
- SmartWay Program [www.epa.gov/smartway](http://www.epa.gov/smartway)